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10/549,524	09/19/2005	Athanassios Tzikas	4-22866/A/PCT	3606

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EXAMINER

CHUNG, RAYMOND

ART UNIT	PAPER NUMBER
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4145

MAIL DATE	DELIVERY MODE
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04/17/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/549,524	Applicant(s) TZIKAS ET AL.	
	Examiner RAYMOND CHUNG	Art Unit 4145	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20060130</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The instant claim recites "tinctorially effective amount". The limitation of a "tinctorially effective amount" is unclear because one of ordinary skill in the art would not be apprised of a definite amount of reactive dye to use that would constitute tinctorial effectiveness.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

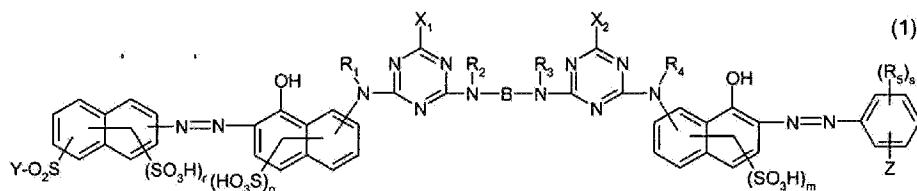
A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-7, 9, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Hoyer et al (US patent 4,323,497).

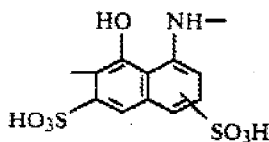
With regards to claim 1, Hoyer et al discloses a reactive dye of formula

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(C1/L5-18,

where K1 and K2 are preferably identical and are left radical found at C1/L45-50

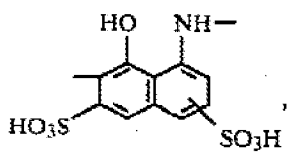


where R is hydrogen,

, D is a benzene nucleus or naphthalene nucleus (C2/L2-3), R₁ ortho to azo group can be halogen or sulfonic acid group (C2/L4-9) and X is preferably β-thiosulfatoethyl or vinyl (C2/L17-18) and A is an alkylene radical of 2-10 carbons (C2/L19))

wherein R₁, R₂, R₃ and R₄ are each independently of the others hydrogen or unsubstituted or substituted C1-C4alkyl (K1 and K2 are preferably identical and are left radical found at C1/L45-50 where R is hydrogen), (R₅)_s denotes s identical or different substituents selected from the group halogen, sulfo, carboxy, C1-C4alkyl and C1-C4alkoxy (C2/L4-9), B is an aliphatic bridging member (C2/L19, A is an alkylene radical of 2-10 carbons), X₁ and X₂ are halogen (C3/L13-15, Y can be chlorine, fluorine or bromine), r is an integer from 0 to 2, s is an integer from 0 to 3, and n and m are each independently of the other a number 1 or 2 (K1 and K2 are preferably identical and are left radical found at C1/L45-50 and contains 2 sulfonic acid groups,

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, and Z is a fiber-reactive group of formula

-SO₂-Y (2a) (C2/L17-18, X is preferably β-thiosulfatoethyl or vinyl),

-NH-CO-(CH₂)_k-SO₂-Y (2b),

-CONH-(CH₂)_l-SO₂-Y (2c),

-NH-CO-CH(Hal)-CH₂-Hal (2d) (C2/L1-2) or

-NH-CO-C(Hal)=CH₂ (2e) (C2/L1-2)

wherein Hal is chlorine or bromine, k and l are each independently of the other a number 2, 3 or 4, and Y is vinyl or a radical -CH₂-CH₂-U and U is a group removable under alkaline conditions (C2/L17-18, X is preferably β-thiosulfatoethyl or vinyl);

- R₁, R₂, R₃ and R₄ are each independently of the others hydrogen or C1-C4alkyl (K1 and K2 are preferably identical and are left radical found at C1/L45-50 where R is hydrogen); (claim 2)

-wherein B is a radical of formula -CH₂-CH(R₇)- or -(R₇)CH-CH₂- wherein R₇ is C1-C4alkyl (C2/L19, A is an alkylene radical of 2-10 carbons); (claim 3)

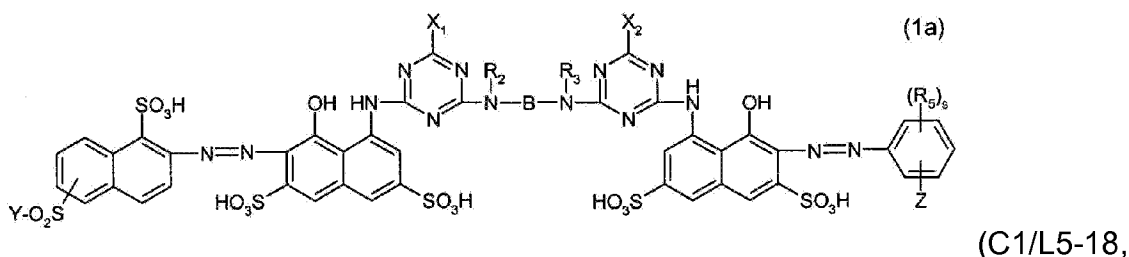
- wherein X1 and X2 are chlorine (C3/L13-15, Y can be chlorine, fluorine or bromine); (claim 4)

- wherein n and m are in each case the number 2 (K1 and K2 are preferably identical and are left radical found at C1/L45-50, each containing 2 sulfonic acid groups, which would amount to n and m each being 2); (claim 5)

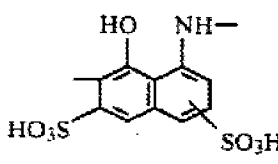
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- wherein Z is a radical of formula $-\text{SO}_2-\text{Y}$ wherein Y is vinyl or β -sulfatoethyl
(C2/L17-18, X is preferably β -thiosulfatoethyl or vinyl). (claim 6)

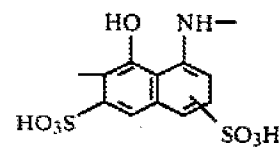
With regards to claim 7, Hoyer et al discloses a reactive dye of formula



where K1 and K2 are preferably identical and are left radical found at C1/L45-50 where

R is hydrogen, , D is a benzene nucleus or naphthalene nucleus (C2/L2-3), R1 ortho to azo group can be halogen or sulfonic acid group (C2/L4-9) and X is preferably β -thiosulfatoethyl or vinyl (C2/L17-18) and A is an alkylene radical of 2-10 carbons (C2/L19))

wherein R2 and R3 are hydrogen (K1 and K2 are preferably identical and are left

radical found at C1/L45-50 where R is hydrogen, , (R5)s denotes s identical or different substituents selected from the group sulfo, methyl and methoxy, B corresponds to a radical of formula $-\text{CH}_2-\text{CH}(\text{R}_7)-$ or $-(\text{R}_7)\text{CH}-\text{CH}_2-$ wherein R7 is methyl (C2/L19, A is an alkylene radical of 2-10 carbons), X1 and X2 are chlorine (C3/L13-15, Y can be chlorine, fluorine or bromine), s is an integer from 0 to 2, and Z is

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a fiber-reactive group of formula $-\text{SO}_2\text{-Y}$ wherein Y is vinyl or β -sulfatoethyl (C2/L17-18, X is preferably β -thiosulfatoethyl or vinyl).

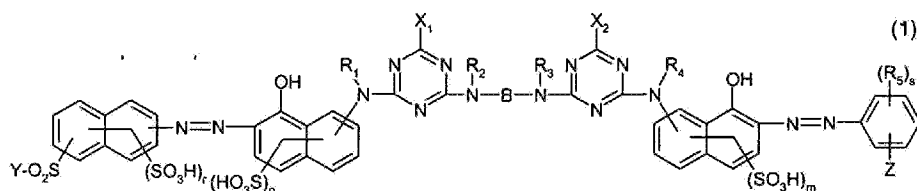
With regards to claim 9, 10, and 13, Hoyer et al discloses all of the claim limitations as set forth above as well as a method of dyeing or printing of hydroxyl-group-containing (C16/L14, cellulose fiber materials) or nitrogen-containing fiber materials (C16/L16-17, polyamide fibers), which comprises contacting (C16/L22-24, applied) said materials with a tinctorially effective amount of a reactive dye of formula (1) as set forth above;

- wherein cellulosic fiber materials are dyed or printed (C16/L14, cellulose fiber materials; see also C16/L32-34, in printing processes for cellulose fibers; C16/L55, dyeing on cotton); (claim 10)

- wherein cotton-containing fiber materials are dyed or printed (C16/L55, dyeing on cotton). (claim 13)

5. Claim 1, 11 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Lacroix et al (US patent 5,972,084).

With regards to claim 1, Lacroix et al discloses a reactive dye of formula



(C1/L45-

C6/L25, where A1 and A2 are radicals for formula 5a and 5b (C6/L1-24), bridge members B1 are C2-C6alkylene radicals (C3/L60-61), Z is vinyl or a radical $-\text{CH}_2\text{CH}_2\text{U}_1$ where U_1 is a leaving group (C2/L52-53), and R1, R2, R3, and R4 are

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each independently of the others hydrogen or unsubstituted or substituted C1-C4alkyl (C1/L59-60))

wherein R_1 , R_2 , R_3 and R_4 are each independently of the others hydrogen or unsubstituted or substituted C1-C4alkyl (C1/L59-60; R_1 , R_2 , R_3 , and R_4 are each independently of the others hydrogen or unsubstituted or substituted C1-C4alkyl), (R5)_s denotes s identical or different substituents selected from the group halogen, sulfo, carboxy, C1-C4alkyl and C1-C4alkoxy (C6/L11-13), B is an aliphatic bridging member (C3/L60-61, bridge members B1 are C2-C6alkylene radicals), X1 and X2 are halogen (C1/L45-55, X1 and X2 are fluorine), r is an integer from 0 to 2, s is an integer from 0 to 3, and n and m are each independently of the other a number 1 or 2 (radicals of formula 5a and 5b can contain 2 sulfonic acid groups naphthalene rings), and Z is a fiber-reactive group of formula

$-\text{SO}_2-\text{Y}$ (2a) (C2/L52-53, Z is vinyl or a radical $-\text{CH}_2\text{CH}_2\text{U}_1$ where U_1 is a leaving group),

$-\text{NH}-\text{CO}-(\text{CH}_2)_k-\text{SO}_2-\text{Y}$ (2b),

$-\text{CONH}-(\text{CH}_2)_l-\text{SO}_2-\text{Y}$ (2c),

$-\text{NH}-\text{CO}-\text{CH}(\text{Hal})-\text{CH}_2-\text{Hal}$ (2d) (C5/L27-32) or

$-\text{NH}-\text{CO}-\text{C}(\text{Hal})=\text{CH}_2$ (2e) (C5/L27-32)

wherein Hal is chlorine or bromine (C5/L31-32), k and l are each independently of the other a number 2, 3 or 4, and Y is vinyl or a radical $-\text{CH}_2-\text{CH}_2-\text{U}$ and U is a group removable under alkaline conditions (C2/L52-53, Z is vinyl or a radical $-\text{CH}_2\text{CH}_2\text{U}_1$ where U_1 is a leaving group).

With regards to claims 11, Lacroix et al teaches all of the claim limitations set forth above, as well as an aqueous ink comprising a reactive dye of formula (1) set forth above (C6/L41, aqueous ink).

With regards to claims 12, Lacroix et al teaches all of the claim limitations set forth above, as well as a method of printing textile fiber materials, paper or plastics films by the inkjet printing method, which comprises contacting said materials with an aqueous ink set forth above (C14/L26-27, drops of ink are sprayed onto substrate).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

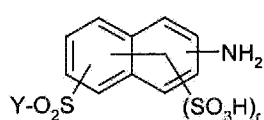
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under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

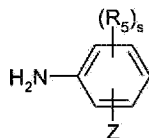
9. Claim 8 rejected under 35 U.S.C. 103(a) as being unpatentable over Hoyer et al (US patent 4,323,497) as applied to claim 1 above.

With regards to claim 8, Hoyer et al teaches all of the claim limitations set forth above and also discloses a process for the preparation of a reactive dye of formula (1) set forth above.

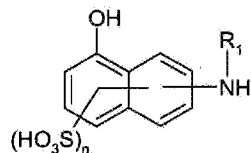
While Hoyer et al does disclose the diazotization of compounds of formula (3) or (4) (D is a benzene nucleus or naphthalene nucleus (C2/L2-3)) followed by coupling of 1 mole each of diazotized (3) or (4) with 1 mole of bridged dimer derived from compounds of formula (5), (6), (7), (8), and (9) in one embodiment (see C4/L13-36, where K1 can be identical to K2), Hoyer et al does not specifically teach the condensation of compounds (7), (8), and (9) to form the bridged dimer, wherein approximately 1 molar equivalent of each of the compounds of formulae



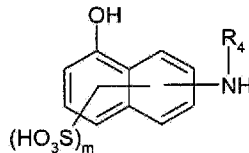
(3),



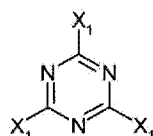
(4),



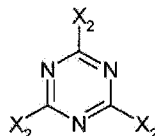
(5),



(6),



(7),



(8) and



(9)

are reacted with one another in a suitable order, R1, R2, R3, R4, R5, B, X1, X2, Y, Z, n, m, r and s in each case being as defined above.

However, one having ordinary skill in the art would have recognized that the compound described by Hoyer et al at C4/L30-35 would have been readily accessed by the nucleophilic aromatic substitution of 1 mole of diamine at C6/L15 with 2 moles of cyanuric chloride disclosed in an example by Hoyer et al (C17/L36) as it is known in the art that primary amines would be expected to successfully displace a chloride atom on an aromatic ring such as that of cyanuric chloride.

Double Patenting

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory

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obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claim 1 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 8 of U.S. Patent No. 5,750,662. Although the conflicting claims are not identical, they are not patentably distinct from each other because one having ordinary skill in the art would recognize that in choosing D to be the radical of formula 8b in conflicting claim 8 of U.S. Patent No. 5,750,662, one would arrive at the invention claimed in instant claim 1.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to RAYMOND CHUNG whose telephone number is (571)270-3881. The examiner can normally be reached on Monday-Thursday, 7:30am-5pm EST, Alt. Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Basia Ridley can be reached on (571) 272-1453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Gwendolyn Blackwell/
Primary Examiner, Art Unit 1794

/R.C./
9 April 2008